ABSTRACT OF THE DISCLOSURE

A plasma processing apparatus comprising a plurality of plasma processing units is provided. Each of the plasma processing units has a matching circuit connected between a radiofrequency generator and a plasma excitation electrode. Among these plasma processing units, a variation $\langle RA \rangle$ between the maximum and minimum values of input-terminal-side AC resistances RA of the matching circuits defined by $\langle RA \rangle = (RA_{max} - RA_{min})/(RA_{max} + RA_{min})$ is adjusted to be less than 0.5. A variation between the maximum and minimum values of output-terminal-side AC resistances RB of the matching circuits defined by $\langle RB \rangle = (RB_{max} - RB_{min})/(RB_{max} + RB_{min})$ is also adjusted to be less than 0.5. The plasma processing units can be adjusted to achieve substantially uniform plasma results in a shorter period of time.